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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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John Trezza

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EXAMINER

BELLO, AGUSTIN

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/896,797	Applicant(s) TREZZA, JOHN	
	Examiner Agustin Bello	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 42-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 and 42-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-34 and 42-55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Each of the independent claims recites spacing of at least a width of an optical fiber. However, this new limitation does not appear to be supported by the specification. At best, the specification simply recites a variety of pitch widths without any indication that the disclosed pitch widths are as wide as or wider than the width of an optical fiber. Furthermore, the specification fails to provide any indication as to what the width of a fiber in the system is, thereby failing to provide any baseline measurement from which one skilled in the art could establish the claimed wider width.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 7, 8, 10-12, 14-17, 20, 21, and 23-25, *as best understood in view of the 35 USC §112 rejection above*, are rejected under 35 U.S.C. 102(e) as being anticipated by Williams (U.S. Patent No. 6,763,157).

Regarding claim 1, Williams teaches multiple optical devices (Figure 1, Figure 3), at least two of the multiple optical devices being of a common device type formed on a common substrate (column 1 lines 30-31) and sharing a common data signal contact so as to define a group (column 6 line 60 – column 7 line 6; reference numeral 3a in Figure 3), each of the at least two of the multiple optical devices in the group that are adjacent to each other (i.e. any two optical devices in the group within circle 32 in Figure 3) being spaced from others of the at least two of the multiple optical devices in the group by more than a width of an optical fiber and being individually selectable relative to others in the group (column 4 lines 19-23), and a controller (column 2 lines 46-51), coupled to the multiple optical devices such that the controller can select which of the at least two optical devices in the group will be active at a given time to input into the optical fiber.

Regarding claims 2 and 15, Williams teaches that the at least two of the multiple optical devices are lasers (column 1 lines 26-34).

Regarding claims 3, 4, 16, and 17, Williams teaches that the lasers comprise top/bottom emitting lasers (i.e. VCSEL of column 1 lines 26-34).

Regarding claims 7 and 20, Williams teaches that the at least two of the multiple optical devices comprise photodetectors (column 1 lines 26-50).

Regarding claims 8 and 21, Williams teaches that the photodetectors comprise top receiving photodetectors (inherent).

Regarding claims 10 and 23, Williams teaches that the multiple optical devices comprise lasers and photodetectors (Figure 4).

Regarding claims 11 and 24, Williams teaches a memory configured to store activation information for the at least two optical devices (abstract; column 2 lines 15-18).

Regarding claims 12 and 25, Williams teaches redundancy selection circuitry (abstract).

Regarding claim 14, Williams teaches at least two optical devices of a first type (i.e. leftmost 34 within reference 32 in Figure 3; reference 34a within the upper rightmost circle in Figure 3) formed adjacent to each other on a common substrate (column 1 lines 30-31) and configured for coupling to a single optical fiber (i.e. leftmost 34 couples to single fiber 32 in Figure 3; reference 34a couples to the upper rightmost fiber in Figure 3); the at least two optical devices of the first type being spaced apart from each other by a distance greater than a width of the single optical fiber (i.e. on opposite ends of the array in Figure 3), an optical device of a second type different from the first type (reference numeral 36 in Figure 3) and configured for coupling to a second optical fiber (i.e. a second fiber of a bundle (column 1 lines 51-65); any of the lower six circles in Figure 3), the at least two optical devices of the first type being related to each other by a common connection (column 6 line 60 – column 7 line 6) such that they can each receive a single source signal and are individually selectable for activation a given time (column 4 lines 19-23) such that at least one of the at least two optical devices can be automatically substituted for an other of the at least two optical devices when the other of the at least two optical devices is a bad device (column 2 lines 15-18).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-6, 9, 13, 18, 19, 22, 26-34, and 42-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams.

Regarding claims 5, 6, 18, and 19, Williams differs from the claimed invention in that Williams fails to specifically teach that the lasers comprise either Bragg reflector lasers or distributed feedback lasers. However, the claimed lasers are well known in the art and Official Notice is given to that effect. Furthermore, Williams discloses that the invention is not limited to any single type of laser, thereby suggesting the invention's compatibility with lasers such as those claimed in the instant application (column 11 lines 60-62). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use either Bragg reflector lasers or distributed feedback lasers in the system of Williams.

Regarding claims 9 and 22, Williams differs from the claimed invention in that Williams fails to specifically teach that the photodetectors comprise bottom receiving photodetectors. However, the claimed photodetectors are well known in the art and Official Notice is given to that effect. Furthermore, Williams discloses that the invention is not limited to any single type of photodetector, thereby suggesting the invention's compatibility with photodetectors such as those claimed in the instant application. Therefore, it would have been obvious to one skilled in

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the art at the time the invention was made to use bottom receiving photodetectors in the system of Williams.

Regarding claims 13, 26, 42, and 52, multiple lasers (reference numeral 44 in Figure 4), multiple detectors (reference numeral 46 in Figure 4), storage (abstract; column 2 lines 15-18), a controller coupled to the storage (column 2 lines 46-51; column 3 lines 3-10), and an interface (column 1 lines 35-50) via which a single optical fiber can be coupled to at least two of the lasers that are adjacent to each other or at least two of the detectors that are adjacent to each other, the storage being configured to identify to the controller an optical device, from among a grouped set of redundant optical devices, that will be an active optical device (abstract; column 9 lines 58-60), and each optical device in the group sharing a data input in common and a common electrical contact (column 6 line 60 – column 7 line 6). Williams differs from the claimed invention in that Williams fails to specifically teach that the number of lasers being unequal to the number of detectors or that the grouped set is defined by a grouping trench. However, as a matter of design choice and as suggested by Williams (column 7 lines 26-34), one skilled in the art would clearly have recognized that the number of lasers could have been selected to not equal the number of receivers. Williams further discloses that trenches surrounding optical components are well known in the art (column 4 lines 23-33; i.e. also suggested in the division between transmitters 30a and receivers 30b in Figure 3), thereby suggesting grouping trenches. One skilled in the art would have been motivated to include grouping trenches in order to thermally and electrically isolate groups of components. Moreover, Williams discloses that the use of other coupling devices is consistent with the spirit and scope of the invention (column 12 lines 53-57), thereby suggesting the ability to couple a single optical fiber to at least two of the

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lasers or at least two of the detectors that are adjacent to each other and spaced apart by more than the width of the single optical fiber. One skilled in the art would have been motivated to employ one of the suggested other coupling devices in order to allow a larger number of lasers to couple to a single fiber. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to carry forward Williams' suggestions for non-equal numbers of transmitters and receivers, isolation of the components via grouping trenches, and coupling of adjacent lasers or receivers with other coupling means to a single fiber.

Regarding claim 27, Williams teaches storage configured to store active indication (abstract; column 2 lines 15-18).

Regarding claim 28, Williams teaches that the group of optical devices comprise lasers (column 1 lines 26-34).

Regarding claim 29, Williams teaches that the group of optical devices comprise photodetectors (column 1 lines 26-50).

Regarding claim 30, Williams teaches a common electrical connection among all of the optical devices in the group (column 6 line 60 – column 7 line 6).

Regarding claim 31, Williams teaches that the group of optical devices are related by a grouping trench so as to be able to concurrently receive data in common with each other (inherent in the ability of Williams' apparatus to seamlessly switch from a failed emitter to a redundant emitter).

Regarding claim 32, Williams teaches multiple fusible links and wherein the active device is determined by a state of at least one fusible link (column 2 lines 58-63).

Regarding claim 33, Williams teaches growing active portions of multiple optical devices on a wafer using a semiconductor material (column 4 lines 23-33), processing the wafer to create complete optical devices patterning the semiconductor material to create individual optical devices (column 4 lines 23-33), grouping the devices by forming trenches (column 4 lines 28-30) in the wafer around the individual devices of a common type; the at least two of the individual devices being spaced apart from each other by a distance greater than the width of an optical fiber (i.e. the devices at opposite ends of the array in any of Figures 3 and 4 being separated by a grouping trench), and connecting each of the at least two devices to a control circuit such that, common data can be received by any of the at least two devices in a set (column 8 lines 40-45) from a single optical fiber (i.e. any one of fibers 32 in Figure 4) but the common data will only be handled by a device of the at least two devices in the set that is an active device (column 6 lines 47-49). Williams differs from the claimed invention in that Williams fails to specifically teach that the grouped set is defined in sets of at least two by a grouping trench. However, Williams discloses that trenches surrounding optical components are well known in the art (column 4 lines 23-33), thereby suggesting grouping trenches. One skilled in the art would have been motivated to include grouping trenches in order to thermally and electrically isolate groups of components. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to carry forward Williams' suggestions for isolation of the components via grouping trenches.

Regarding claim 34, Williams teaches storing data that identified the device of the at least two devices in the group that is the active device (abstract; column 2 lines 15-18).

Regarding claims 43-46, Williams differs from the claimed invention in that Williams fails to specifically teach that claimed ratios of transmitters to receivers. However, as a matter of design choice and as suggested by Williams (column 7 lines 26-34), one skilled in the art would clearly have recognized that the ratio of transmitters to receivers could have been selected to be any ratio including those claimed. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to fix the ratio of transmitters to receivers to any of the claimed ratios.

Regarding claim 47, Williams teaches that the number of transmitters comprises at least two groups (as seen in Figure 3).

Regarding claims 48 and 49, Williams teaches that one of the two groups comprises two or three lasers (as seen in Figure 3) and one of the lasers is a backup (i.e. the redundancy provided by Williams).

Regarding claims 50 and 51, having exactly one or two of three lasers as the backup laser is well within the scope of Williams' redundancy scheme.

Regarding claim 53, Williams teaches that the first transmitter further comprises programmable laser selection control (column 4 lines 52-65).

Regarding claim 54, Williams teaches that the first transmitter further comprises transmitter failure detection sensor (column 6 lines 47-59).

Regarding claim 55, Williams teaches an automatic failover circuit (column 6 line 60 – column 7 line 6).

Response to Arguments

7. Applicant's arguments filed 12/28/07 have been fully considered but they are not persuasive. Applicant argues that the addition of the limitation to adjacent ones of the optical devices being spaced apart from each other by more than a width of an optical fiber distinguishes the claimed invention from the cited prior art. However, this new limitation is not supported by the specification and therefore constitutes new matter. Although the specification discusses the variety of pitch widths possible, it fails to positively disclose that any of pitch widths are wider than the width of an optical fiber. Furthermore, with fibers coming in a wide array shapes and sizes, it is impossible to determine how far apart the optical devices would have to be in order to meet the limitations of the claimed invention being that the specification fails to define a particular fiber width. As such the new limitations are not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Moreover, as noted by applicant in the specification, pitch widths of up to 250 microns are well known in the art (page 2, third paragraph). This fact coupled with the fact that Williams discloses fiber cores having a width of 62.5 microns would have obviated the claimed invention had it been supported by the specification as originally filed.

As to applicant's argument that Williams fails to teach grouping trenches, the examiner first notes that Williams at least suggests grouping trenches via the disclosure of trenches. If applicants trench is somehow structurally different from that of Williams, then applicant's claim language should reflect these features. Otherwise, Williams' trenches meet the applicant's claim to grouping trenches.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection, i.e. the 112 1st paragraph rejection, presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Agustin Bello/

Primary Examiner, Art Unit 2613